Test Report
Aggregate Stripping Value

Project Name	1. Improvement of drain at thirumenahalli village main road in ward no 05 byatarayanapura sub division.2) Improvement of road and drain at thirumenahalli junction to agrahara layout govt hospital in ward no05 byatarayanapura sub division 3)Improvement of roads and drain at chokkanahalli village main road cross road in ward no 05 byatarayanapura sub division 4) Improvement of roads and drain at markendeyanagara main road and cross roads in ward no 05 byatarayanapura sub division 5) Improvement of roads and drain at sriraj layout main road and cross road in ward no 05 byatarayanapura sub division 6) Improvement of roads and drain at kogilu surrounding in ward no 05 byatarayanapura sub division 7)Improvement of roads and drain at agrahara village cross roads in ward no 05 byatarayanapura sub division 8) Improvement of roads and drain at agrahara layout kallappa reddy main road in ward no 05 byatarayanapura sub division
Client	Executive Engineer Project Division Yelahanka Zone
Job No	MCTPL/BBMP/Project Division Yelahanka Zone /PMC/2017-
Mix Type	Bituminous Concrete (BC)
Contractor	Sri. S.K. CHANDRA
Test Method	IS : 6241 - 1971 & Specification for Road & Bridge Works, MORT&H, Revision V.
Location	Hot Mix Plant
Material	Coarse Aggregates / Bitumen
Sample No	1
Date	14-May-2018
Type of Aggregate	Coarse Aggregate
Type of Binder	60 / 70 Grade
Percentage of Binder Used	5% by weight
Total weight of Aggregate	200 gms
Total weight of Binder	10 gms
Temperature of water bath	40^0C

Observation Number	Stripping Percentage	Average Percentage	Average Retained Coating (%)
1	3.6	3.47	96.53
2	3.5		
3	3.3		

Comments: Minimum allowable Aggregate Stripping Value for Bituminous Concrete is 95%

Note:

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For Mecadez Core Technologies Private Limited

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Asst. Executive Engineer
Project Division
Yelahanka Zone

Test Report

Specific Gravity and Water Absorption

Project Name	1. Improvement of drain at thirumenahalli village main road in ward no 05 byatarayanapura sub division.2) Improvement of road and drain at thirumenahalli junction to agrahara layout govt hospital in ward no05 byatarayanapura sub division 3)Improvement of roads and drain at chokkanahalli village main road cross road in ward no 05 byatarayanapura sub division 4) Improvement of roads and drain at markendeyanagara main road and cross roads in ward no 05 byatarayanapura sub division 5) Improvement of roads and drain at sriraj layout main road and cross road in ward no 05 byatarayanapura sub division 6) Improvement of roads and drain at kogilu surrounding in ward no 05 byatarayanapura sub division 7)Improvement of roads and drain at agrahara village cross roads in ward no 05 byatarayanapura sub division 8) Improvement of roads and drain at agrahara layout kallappa reddy main road in ward no 05 byatarayanapura sub division
Client	Executive Engineer Project Division Yelahanka Zone
Job No	MCTPL/BBMP/Project Division Yelahanka Zone /PMC/2017-
Mix Type	Bituminous Concrete (BC)
Contractor	Sri. S.K. CHANDRA
Test Method	IS: 2386 (Part - 111) 1963 & Specification for Road & Bridge Works, MORT&H, Rev. V.
Location	Hot Mix Plant
Material	Coarse Aggregates
Sample No	1
Date	14-May-2018

Sl. No.	Particulars	Computations	Test Numbers		Mean
			Test 1	Test 2	
1	Weight of Empty Basket Immersed in Water	W_1 g	761	763	
2	water	W_2g	2055	2040	
3	Weight of Saturated Aggregate in water	W_sg = W_2- W_1	1294	1277	
4	Weight of saturated surface dry aggregate in Air	W_3 g	2090	2065	
5	Aggregate	W_3- W_s	796	788	
6	Weight of Oven dried Aggregate	W_4g	2051	2036	
7	Specific Gravity	W_4/(W_3- W_s)	2.58	2.58	2.58
8	Apparent Specific Gravity	W_4/(W_4- W_s)	2.71	2.68	2.70
9	Water Absorption	(W_4- W_3)*100/ W_4	1.9	1.42	1.66

Comments: Maximum allowable Aggregate Water Absorption value for Bituminous Concrete is 2.0%.

Note:

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Asst. Executive Enginee
Project Division
Yelahanka Zone
Bangalore

Test Report
Aggregate Gradation

Project Name	1. Improvement of drain at thirumenahalli village main road in ward no 05 byatarayanapura sub division.2) Improvement of road and drain at thirumenahalli junction to agrahara layout govt hospital in ward no05 byatarayanapura sub division 3)Improvement of roads and drain at chokkanahalli village main road cross road in ward no 05 byatarayanapura sub division 4) Improvement of roads and drain at markendeyanagara main road and cross roads in ward no 05 byatarayanapura sub division 5) Improvement of roads and drain at sriraj layout main road and cross road in ward no 05 byatarayanapura sub division 6) Improvement of roads and drain at kogilu surrounding in ward no 05 byatarayanapura sub division 7)Improvement of roads and drain at agrahara village cross roads in ward no 05 byatarayanapura sub division 8) Improvement of roads and drain at agrahara layout kallappa reddy main road in ward no 05 byatarayanapura sub division
Client	Executive Engineer Project Division Yelahanka Zone
Job No	MCTPL/BBMP/Project Division Yelahanka Zone /PMC/2017-2018/QR/P-
Mix Type	Bituminous Concrete (BC)
Contractor	Sri. S.K. CHANDRA
Test Method	IS : 2386 (Part - 1) 1963 & Specification for Road & Bridge Works, MORT&H, Rev. V.
Location	Hot Mix Plant
Material	Coarse Aggregates
Sample No	1
Date	16-May-2018

Weight of Sample: 4000 gms

Sl. No.	I.S. Sieve size (mm)	Weight Retained (gm)	Percentage of weight Retained (%)	Cumulative Percentage of weight retained	Cumulative % of Passing		Remarks
					Test Result	Gradation Limits as per MORT&H	
1	19.00	0	0.00	0.00	100.00	100	Gradation satisfies the MORT&H Grade ll Specification for Bituminous Concrete
2	13.20	674	16.85	16.85	83.15	72-100	
3	9.50	433	10.83	27.68	72.33	70-88	
4	4.75	232	5.80	33.48	66.53	53-71	
5	2.36	482	12.05	45.53	54.48	42-58	
6	1.18	344	8.60	54.13	45.88	34-48	
7	0.60	435	10.88	65.00	35.00	26-38	
8	0.30	432	10.80	75.80	24.20	18-28	
9	0.15	382	9.55	85.35	14.65	12-20)	
10	0.075	362	9.05	94.40	5.60	(4-10)	

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Asst. Executive Engineer
Project Division
Yelahanka Zone
Bangalore

Test Report
Stability of Mix

Project Name	1. Improvement of drain at thirumenahalli village main road in ward no 05 byatarayanapura sub division.2) Improvement of road and drain at thirumenahalli junction to agrahara layout govt hospital in ward no05 byatarayanapura sub division 3)Improvement of roads and drain at chokkanahalli village main road cross road in ward no 05 byatarayanapura sub division 4) Improvement of roads and drain at markendeyanagara main road and cross roads in ward no 05 byatarayanapura sub division 5) Improvement of roads and drain at sriraj layout main road and cross road in ward no 05 byatarayanapura sub division 6) Improvement of roads and drain at kogilu surrounding in ward no 05 byatarayanapura sub division 7)Improvement of roads and drain at agrahara village cross roads in ward no 05 byatarayanapura sub division 8) Improvement of roads and drain at agrahara layout kallappa reddy main road in ward no 05 byatarayanapura sub division
Client	Executive Engineer Project Division Yelahanka Zone
Job No	MCTPL/BBMP/Project Division Yelahanka Zone /PMC/2017-2018/QR/P-
Mix Type	Bituminous Concrete (BC)
Contractor	Sri. S.K. CHANDRA
Test Method	Specification for Road & Bridge Works, MORT&H, Revision V.
Location	Bay
Material	Bituminous Concrete mix
Sample No	1
Date	18-May-2018

Sl. No.	Description	Unit	Test 1	Requirements as per MORT&H
1	Marshal Stability	KN	**9.2**	9 KN (min)
2	Marshal Flow	mm	**3.54**	2 – 4 mm
3	Percent of Air Voids in mix	%	**4.5**	3 – 6 %
4	Percent of Voids in Mineral Aggregates filled with Bitumen	%	**72**	65 – 75 %
5	Density	g/cc	**2.21**	2.22 g/cc

Note:

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Project Division
Yelahanka Zone
Bangalore

Test Report
Stability of Mix

Project Name	1. Improvement of drain at thirumenahalli village main road in ward no 05 byatarayanapura sub division.2) Improvement of road and drain at thirumenahalli junction to agrahara layout govt hospital in ward no05 byatarayanapura sub division 3)Improvement of roads and drain at chokkanahalli village main road cross road in ward no 05 byatarayanapura sub division 4) Improvement of roads and drain at markendeyanagara main road and cross roads in ward no 05 byatarayanapura sub division 5) Improvement of roads and drain at sriraj layout main road and cross road in ward no 05 byatarayanapura sub division 6) Improvement of roads and drain at kogilu surrounding in ward no 05 byatarayanapura sub division 7)Improvement of roads and drain at agrahara village cross roads in ward no 05 byatarayanapura sub division 8) Improvement of roads and drain at agrahara layout kallappa reddy main road in ward no 05 byatarayanapura sub division
Client	Executive Engineer Project Division Yelahanka Zone
Job No	MCTPL/BBMP/Project Division Yelahanka Zone /PMC/2017-2018/QR/P-
Mix Type	Bituminous Concrete (BC)
Contractor	Sri. S.K. CHANDRA
Test Method	Specification for Road & Bridge Works, MORT&H, Revision V.
Location	Bay
Material	Bituminous Concrete mix
Sample No	2
Date	18-May-2018

Sl. No.	Description	Unit	Test 1	Requirements as per MORT&H
1	Marshal Stability	KN	**9.65**	9 KN (min)
2	Marshal Flow	mm	**3.52**	2 – 4 mm
3	Percent of Air Voids in mix	%	**4**	3 – 6 %
4	Percent of Voids in Mineral Aggregates filled with Bitumen	%	**71.4**	65 – 75 %
5	Density	g/cc	**2.22**	2.22 g/cc

Note:

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Yelahanka Zone
Bangalore

Test Report
Stability of Mix

Project Name	1. Improvement of drain at thirumenahalli village main road in ward no 05 byatarayanapura sub division.2) Improvement of road and drain at thirumenahalli junction to agrahara layout govt hospital in ward no05 byatarayanapura sub division 3)Improvement of roads and drain at chokkanahalli village main road cross road in ward no 05 byatarayanapura sub division 4) Improvement of roads and drain at markendeyanagara main road and cross roads in ward no 05 byatarayanapura sub division 5) Improvement of roads and drain at sriraj layout main road and cross road in ward no 05 byatarayanapura sub division 6) Improvement of roads and drain at kogilu surrounding in ward no 05 byatarayanapura sub division 7)Improvement of roads and drain at agrahara village cross roads in ward no 05 byatarayanapura sub division 8) Improvement of roads and drain at agrahara layout kallappa reddy main road in ward no 05 byatarayanapura sub division
Client	Executive Engineer Project Division Yelahanka Zone
Job No	MCTPL/BBMP/Project Division Yelahanka Zone /PMC/2017-2018/QR/P-
Mix Type	Bituminous Concrete (BC)
Contractor	Sri. S.K. CHANDRA
Test Method	Specification for Road & Bridge Works, MORT&H, Revision V.
Location	Bay
Material	Bituminous Concrete mix
Sample No	3
Date	18-May-2018

Sl. No.	Description	Unit	Test 1	Requirements as per MORT&H
1	Marshal Stability	KN	**9.75**	9 KN (min)
2	Marshal Flow	mm	**3.45**	2 – 4 mm
3	Percent of Air Voids in mix	%	**5.2**	3 – 6 %
4	Percent of Voids in Mineral Aggregates filled with Bitumen	%	**72.4**	65 – 75 %
5	Density	g/cc	**2.22**	2.22 g/cc

Note:

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Yelahanka Zone
Bangalore

Test Report
Stability of Mix

Project Name	1. Improvement of drain at thirumenahalli village main road in ward no 05 byatarayanapura sub division.2) Improvement of road and drain at thirumenahalli junction to agrahara layout govt hospital in ward no05 byatarayanapura sub division 3)Improvement of roads and drain at chokkanahalli village main road cross road in ward no 05 byatarayanapura sub division 4) Improvement of roads and drain at markendeyanagara main road and cross roads in ward no 05 byatarayanapura sub division 5) Improvement of roads and drain at sriraj layout main road and cross road in ward no 05 byatarayanapura sub division 6) Improvement of roads and drain at kogilu surrounding in ward no 05 byatarayanapura sub division 7)Improvement of roads and drain at agrahara village cross roads in ward no 05 byatarayanapura sub division 8) Improvement of roads and drain at agrahara layout kallappa reddy main road in ward no 05 byatarayanapura sub division
Client	Executive Engineer Project Division Yelahanka Zone
Job No	MCTPL/BBMP/Project Division Yelahanka Zone /PMC/2017-2018/QR/P-
Mix Type	Bituminous Concrete (BC)
Contractor	Sri. S.K. CHANDRA
Test Method	Specification for Road & Bridge Works, MORT&H, Revision V.
Location	Bay
Material	Bituminous Concrete mix
Sample No	4
Date	20-May-2018

Sl. No.	Description	Unit	Test 1	Requirements as per MORT&H
1	Marshal Stability	KN	**9.6**	9 KN (min)
2	Marshal Flow	mm	**3.7**	2 – 4 mm
3	Percent of Air Voids in mix	%	**5**	3 – 6 %
4	Percent of Voids in Mineral Aggregates filled with Bitumen	%	**71.28**	65 – 75 %
5	Density	g/cc	**2.21**	2.22 g/cc

Note:

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Asst. Executive Engineer
Project Division
Yelahanka Zone
Bangalore

Test Report
Stability of Mix

Project Name	1. Improvement of drain at thirumenahalli village main road in ward no 05 byatarayanapura sub division.2) Improvement of road and drain at thirumenahalli junction to agrahara layout govt hospital in ward no05 byatarayanapura sub division 3)Improvement of roads and drain at chokkanahalli village main road cross road in ward no 05 byatarayanapura sub division 4) Improvement of roads and drain at markendeyanagara main road and cross roads in ward no 05 byatarayanapura sub division 5) Improvement of roads and drain at sriraj layout main road and cross road in ward no 05 byatarayanapura sub division 6) Improvement of roads and drain at kogilu surrounding in ward no 05 byatarayanapura sub division 7)Improvement of roads and drain at agrahara village cross roads in ward no 05 byatarayanapura sub division 8) Improvement of roads and drain at agrahara layout kallappa reddy main road in ward no 05 byatarayanapura sub division
Client	Executive Engineer Project Division Yelahanka Zone
Job No	MCTPL/BBMP/Project Division Yelahanka Zone /PMC/2017-2018/QR/P-
Mix Type	Bituminous Concrete (BC)
Contractor	Sri. S.K. CHANDRA
Test Method	Specification for Road & Bridge Works, MORT&H, Revision V.
Location	Bay
Material	Bituminous Concrete mix
Sample No	5
Date	20-May-2018

Sl. No.	Description	Unit	Test 1	Requirements as per MORT&H
1	Marshal Stability	KN	**9.5**	9 KN (min)
2	Marshal Flow	mm	**3.6**	2 – 4 mm
3	Percent of Air Voids in mix	%	**4.82**	3 – 6 %
4	Percent of Voids in Mineral Aggregates filled with Bitumen	%	**70.2**	65 – 75 %
5	Density	g/cc	**2.21**	2.22 g/cc

Note:

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Yelahanka Zone
Bangalore

Test Report
Stability of Mix

Project Name	1. Improvement of drain at thirumenahalli village main road in ward no 05 byatarayanapura sub division.2) Improvement of road and drain at thirumenahalli junction to agrahara layout govt hospital in ward no05 byatarayanapura sub division 3)Improvement of roads and drain at chokkanahalli village main road cross road in ward no 05 byatarayanapura sub division 4) Improvement of roads and drain at markendeyanagara main road and cross roads in ward no 05 byatarayanapura sub division 5) Improvement of roads and drain at sriraj layout main road and cross road in ward no 05 byatarayanapura sub division 6) Improvement of roads and drain at kogilu surrounding in ward no 05 byatarayanapura sub division 7)Improvement of roads and drain at agrahara village cross roads in ward no 05 byatarayanapura sub division 8) Improvement of roads and drain at agrahara layout kallappa reddy main road in ward no 05 byatarayanapura sub division
Client	Executive Engineer Project Division Yelahanka Zone
Job No	MCTPL/BBMP/Project Division Yelahanka Zone /PMC/2017-2018/QR/P-
Mix Type	Bituminous Concrete (BC)
Contractor	Sri. S.K. CHANDRA
Test Method	Specification for Road & Bridge Works, MORT&H, Revision V.
Location	Bay
Material	Bituminous Concrete mix
Sample No	6
Date	20-May-2018

Sl. No.	Description	Unit	Test 1	Requirements as per MORT&H
1	Marshal Stability	KN	**9.87**	9 KN (min)
2	Marshal Flow	mm	**3.33**	2 – 4 mm
3	Percent of Air Voids in mix	%	**4.5**	3 – 6 %
4	Percent of Voids in Mineral Aggregates filled with Bitumen	%	**71**	65 – 75 %
5	Density	g/cc	**2.21**	2.22 g/cc

Note:

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Asst. Executive Engineer
Project Division
Yelahanka Zone
Bangalore

Test Report
Binder Content and Mix Gradation

Project Name	1. Improvement of drain at thirumenahalli village main road in ward no 05 byatarayanapura sub division.2) Improvement of road and drain at thirumenahalli junction to agrahara layout govt hospital in ward no05 byatarayanapura sub division 3)Improvement of roads and drain at chokkanahalli village main road cross road in ward no 05 byatarayanapura sub division 4) Improvement of roads and drain at markendeyanagara main road and cross roads in ward no 05 byatarayanapura sub division 5) Improvement of roads and drain at sriraj layout main road and cross road in ward no 05 byatarayanapura sub division 6) Improvement of roads and drain at kogilu surrounding in ward no 05 byatarayanapura sub division 7)Improvement of roads and drain at agrahara village cross roads in ward no 05 byatarayanapura sub division 8) Improvement of roads and drain at agrahara layout kallappa reddy main road in ward no 05 byatarayanapura sub division
Client	Executive Engineer Project Division Yelahanka Zone
Job No	MCTPL/BBMP/Project Division Yelahanka Zone /PMC/2017-2018/QR/P-9/2
Mix Type	Bituminous Concrete (BC)
Contractor	Sri. S.K. CHANDRA
Test Method	Specification for Road & Bridge Works, MORT&H, Revision V.
Location	Bay
Material	Bituminous Concrete mix
Sample No	1
Date	18-May-2018

Sl. No.	Description	Unit	Computation	Test Result
1	Weight of Empty bowl before Extraction (E)	gm	Eb	1080
2	Weight of bowl + Sample before extraction (w_s)	gm	w_{sb}	1754
3	Weight of Sample taken for the test (S_b)	gm	$S_b = w_{sb} - Eb$	674
4	Weight of bowl + Sample after extraction (w_s)	gm	w_{sa}	1716
5	Weight of Sample after extraction (i.e. washed aggregates) (S_a)	gm	$S_a = w_{sa} - Eb$	636
6	Weight of Filter paper before extraction (F_b)	gm	F_b	2
7	Weight of Filter paper after extraction (F_a)	gm	F_a	4
8	Weight of filler on filter paper (F_d)	gm	$F_d = F_b - F_a$	2
9	Weight of Bitumen without considering Filter paper (W_b)	gm	W_b	38
10	Weight of the Bitumen with considering Filter paper (W_a)	gm	$W_a = w_b - F_d$	36
11	Percentage of the Bitumen (i.e. Binder Content) ($\%_B$)	(%)	W_a/ SbX100	5.34

Sl. No.	I.S. Sieve size (mm)	Weight Retained (gm)	Percentage of weight Retained (%)	Cumulative Percentage of weight retained (%)	Cumulative % of Passing		Remarks
					Test Result	Gradation Limits as per MORT&H	
1	19.00	0.00	0.00	0.00	100.00	100.00	Gradation satisfies the MORT&H Grade II Specification for Bituminous Concrete
2	13.20	674.00	16.85	16.85	83.15	72-100	
3	9.50	433.00	10.83	27.68	72.33	70-88	
4	4.75	232.00	5.80	33.48	66.53	53-71	
5	2.36	482.00	12.05	45.53	54.48	42-58	
6	1.18	344.00	8.60	54.13	45.88	34-48	
7	0.60	435.00	10.88	65.00	35.00	26-38	
8	0.30	432.00	10.80	75.80	24.20	18-28	
9	0.15	382.00	9.55	85.35	14.65	12-20)	
10	0.08	362.00	9.05	94.40	5.60	(4-10)	

For Mecadez Core Technologies Private Limited

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Asst. Executive Engineer
Project Division
Yelahanka Zone
Bangalore